

Contribution to the Oribatid Mite Fauna of Georgia.

1. New species of Poronota

(Acari, Oribatida)

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Two new species and one subspecies from Georgia, *Parachipteria georgica*, spec. nov., *Ceratozetes colchica*, spec. nov., and *Acrogalumna longipluma adjarica*, subspec. nov. are described. Some datas of *Parachipteria georgica*, spec. nov. and *P. nicoleti* Berlese, 1883, as most related species, have been treated statistically. The combination of main characters – body length, length of anterior notogastral setae and shape of border of pteromorphae – confirms two well separated species.

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Introduction

Within an ecological research program in West Georgian subtropical region Adjara and in East Georgian continental region of Gombori Mountain Range some new taxa of poronotid oribatid mites have been found. *Acrogalumna longipluma adjarica*, subspec. nov., *Parachipteria georgica*, spec. nov., and *Ceratozetes colchica*, spec. nov. have been compared with species of the genera each, which are recorded from the region as well as from other origins. Because of the low value of each of the differentiating characters in *Parachipteria georgica*, spec. nov., these are compared statistically with characters of *Parachipteria nicoleti* from the same regions.

Location of types

Types are deposited in the collection of the Zoological Institute of Georgian Academy of Sciences in Tbilisi (ZIGAST) and in the collection of the coauthor (GW).

Acrogalumna longipluma adjarica, subspec. nov.

Fig. 1

Diagnosis. With typical characters of *Acrogalumna* (without lamellae; male with centrodorsal pores on notogaster, females without). Interlamellar setae short. Sensillus long, setiform, with only 5-6 short setulae. The areae porosae *Aa* divided in two parts. *A*₁ round, *A*₂ and *A*₃ longitudinal.

Types. Holotype: ♀, Georgian subtropical region Adjara, Kintrishi reserve, H: 680 m, 41°43'27" E, 42°03'46"N, 29.8.2001 (ZIGAST). – Paratype: 1♂, same data (GW).

Description

General characters. Length of body 610-620 µm. Color dark brown. Cuticle smooth.

Prodorsum without lamellar line. Sublamellar line exists (Fig. 1D). Rostal and lamellar setae of medium size (≈60-70 µm), thin, smooth. Interlamellar setae short (≈20 µm). Sensilli setiform, long (≈130 µm), with few small setulae (Fig. 1C). Dorsal



Fig. 1. *Acrogalumna adjarica longipluma*, subspec. nov. A. Dorsal aspect of female. B. Posterior part of notogaster of male with centrodorsal pores. C. Sensillus. D. Lateral aspect of prodorsum (The bar indicates 100 μ m; Aa: Area porosa adalaris; sl: sublamella).

sejugal suture interrupted, with oval areae porosae Ad (Fig. 1A).

Notogaster with 10 pairs of vestigial setae. Areae porosae Aa divided on two rounded parts. A₁ round, A₂ and A₃ prolonged. Notogaster of the male with centrodorsal pores (Fig. 1B), female without this (Fig. 1A).

Ventral region. Anogenital chaetotaxy: 6 g, 1 ag, 2 an, 3 ad. All setae minute, smooth, thin or vestigial. Tarsi of legs with 3 claws.

Derivatio nominis. *A. longipluma adjarica*, subspec. nov. refers to the subtropical region Adjara in Georgia.

Locality. A damp biotop with mean annual precipitation of 3898 mm. Mixed wood with *Castania sativa*, *Carpinus caucasica*, *Alnus barbata*, *Picea orientalis*. Underwood with *Rhododendron ponticum*, *Corylus avellana*.

Discussion. The new taxon from Georgia is very similar to *Acrogalumna longipluma* (Berlese, 1904), with regard to long and setiform sensilli, areae porosae Aa divided in two parts and longitudinal A₃;

but it differs from the typical *A. longipluma* in short interlamellar setae, relatively prolonged A₂ (in typical *A. longipluma* A₂ is round or ovoid). The body length of the single female is 620 μ m, thus near the lower size range of the typical *A. longipluma* with 625-710 μ m.

All descriptions of the typical *A. longipluma* (Willmann 1931, Engelbrecht 1972, Ghilarov & Krivolutski 1975, Mahunka 1992, Perez-Iñigo 1993) show long interlamellar setae and indicate a longer body size (if mentioned). We propose to regard the specimens as a regional subspecies.

The species and subspecies differs from other species in the diagnostic characters. *A. ventralis* Willmann, 1932, from Sumatra (Willmann 1932), reported by Hammer (1972) from Tahiti, has thickened fusiform sensillae, minute interlamellar setae, round A₂ and A₃. *A. (?) shogranensis* Hammer, 1977 (Hammer 1977), from Pakistan has long interlamellar setae, thin fusiform sensillae, round A₂ and A₃. *A. machadoi* Balogh, 1960 (Balogh 1960), from Congo has long interlamellar setae, round A₂ and A₃, and smaller body size.

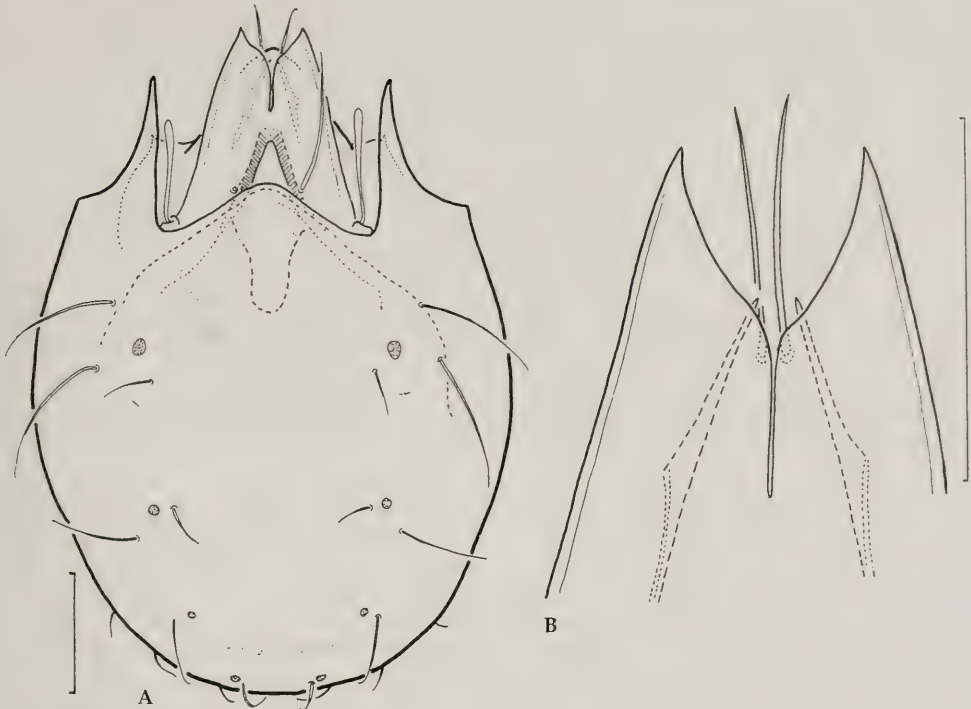


Fig. 2. *Parachipteria georgica*, spec. nov. A. Dorsal aspect. B. Lamellar region.

Parachipteria georgica, spec. nov.

Figs 2-3

Diagnosis. Body size 485-610 μm . Lamellar cuspides with large lateral tooth. Interlamellar setae long. Tutorium with long, free tip. Pedotectum I with small tooth. Sensillus long, thickened, head rounded. Areae porosae well discernible, relatively big. Anterior setae of notogaster very long. The distal edge of pteromorphae with tip or rectangle corner.

Types. Holotype: ♀, Georgian subtropical region, Adjara, West Georgia, Matchakhela ravine, H: 68 m, 41°30'45" E, 41°43'15" N, 30.8.2001 (ZIGAST). – Paratypes: 2, same data (ZIGAST); 2, same area, bank of the river Tchorokhi, 30.8.2001 (ZIGAST); 1, same area, at lake Giol-Giol, 25.8.2001 (ZIGAST); 1, same area, Bako Mountain, 25.8.2001 (ZIGAST); 2, same area, Kintrishi Reserve, v. Didvake, H: 884 m, 29.8.2001 (ZIGAST); 1, same area, Kintrishi Reserve, v. Khino, H: 1000 m, 41°43'46" E, 42°03'46" N, 29.8.2001 (ZIGAST); 25, East Georgia, all 9.2001: 3, Gombori Mountain Range, 4, in v. Askilauri, 4, over Shuamta, 5, in v. Mere, 2, in Shuamta, 3, in Bogs of Ujarma (20 in ZIGAST, 5 in GW).

Description

General characters. Length of body: 485-610 μm (515-590 μm in region Adjara, West Georgia and

485-610 μm in region of Gombori Mountain Range, East Georgia). Color: dark reddish-brown. Cuticle smooth, with fine punctuation.

Prodorsum. Lamellar cuspides with large lateral teeth. Short lamellar setae inserted at the inner edge of cuspides (Figs 2A, B). Rostrum covered by cuspides. Interlamellar setae \pm reaching the tip of the rostrum. Pedotectum I with short tooth. Tutoria with long, free tips, nearly reaching each other (Fig. 2B). Sensillus long, fusiform, tip rounded.

Notogaster. Areae porosae large, well discernible, round-oval; the posterior ones smaller. 10 pairs of notogastral setae; c_2 and te very long, thin, smooth (70-110 μm). Other setae (h_2, h_3) shorter ($\approx 25 \mu\text{m}$). Sharp projection of pteromorphae long, reaches the distal level of pedotectum I. Distal edge of pteromorphae with distinct teeth or rectangle corner (Fig. 2A).

Ventral region shows no peculiarities. Ventral chaetotaxy: 6 g, 1 ag, 2 an, 3 ad.

All legs with 3 claws.

Derivatio nominis. *Parachipteria georgica*, spec. nov. refers to the country Georgia.

Localities. Adjara, West Georgia, at the bank of the river Chorokhi, in chesnut forest with *Castanea sati-*

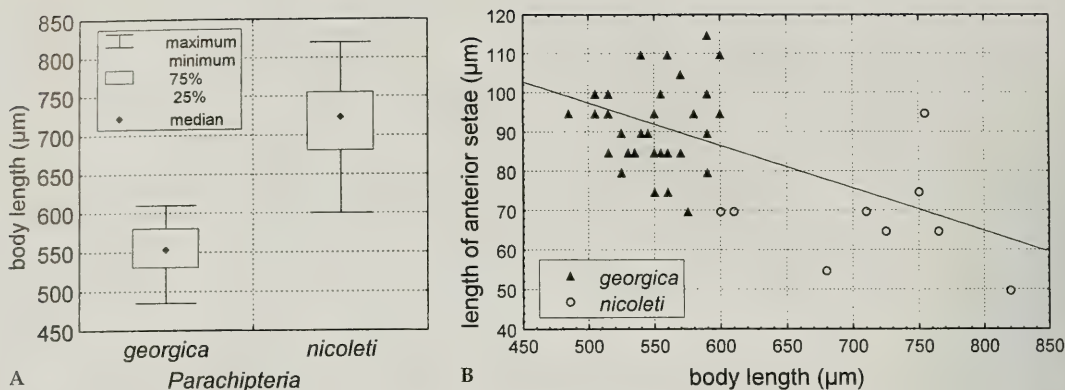


Fig. 3. A. Variability of body lengths of *P. georgica*, spec. nov. and *P. nicoleti* Berlese. B. Correlation of length of anterior notogastral setae (c_2 , te) and body length in *P. georgica*, spec. nov. and *P. nicoleti* Berlese.

va; Machakhela ravine, mixed wood with *Castanea sativa*, *Quercus dschorochensis*, *Carpinus orientalis*, *Taxus bacata*, underforest with *Buxus colchikus*, *Corylus avellana*, *Smilax excelsa*; Bako Mountain, *Rhododendron* stand; Kintrishi Reserve, v. Didvake, chestnut forest with *Castanea sativa*; Kintrishi Reserve, v. Khino, mixed wood with *Castanea sativa*, *Carpinus caucasica*, *Alnus barbata*, *Picea orientalis*, underforest with *Corylus avellana*, *Rhododendron ponticum*, *Rubus dolichocarpus*, *Sambucus ebulus*.

East Georgia: Gombori Mountain Range, mixed wood; v. Askilauri, mixed wood; over Shuamta, *Carpinus* forest; v. Mere, *Carpinus* forest; Nagubrebi, *Pinus* forest; on the right bank of the river Turdo, *Pinus* forest; Shuamta, Mixed wood; Bogs of Ujarma, *Quercus* forest.

Discussion. *Parachipteria georgica*, spec. nov. is similar to *P. nicoleti* Berlese, 1883 and *P. punctata* Nicolet, 1855 with regard to long and free tutorium tip and pedotectum I with protruding small thooth, but differs from both of them in some characters.

Body size of *P. punctata* is similar to *P. georgica* (475–585 µm), but it has very small areae porosae, *Aa* is hardly discernable, or not discernable at all, whereas *P. georgica* has well developed, rounded *Aa*.

P. nicoleti is similar to *P. georgica* in morphological aspects with anterior notogastral setae about 60 µm (50–95 µm) long and large areae porosae, but it's body size is bigger then in *P. georgica* (550–700 µm) and the distal edge of pteromorphae is rounded or with obtuse-angled corner (cf. redescription of *P. nicoleti* (Berlese, 1883) by Mahunka (1994) and it's junior synonym *P. willmannii* Hammen, 1952, by Seniczak 1977; the species is identical with "*P. punctatus*" sensu Willmann 1931).

To confirm the specificity of *P. georgica*, we measured the body size, length of anterior setae and type

of pteromorphae of each specimen of *P. georgica* and *P. nicoleti* from both regions of Georgia. The data have been treated statistically. As shown in Fig. 3A, the total body lengths of *P. nicoleti* and *P. georgica* differ significantly. The populations within both species as from East Georgia as from West Georgia, do not differ. The combination of three characters – body length, length of anterior notogastral setae and border of pteromorphae (in the graph: "*georgica*" type of pteromorphs as triangle, "*nicoleti*" type as circle) – confirms two well separated species (Fig. 3B), irrespective of the regional origin.

Ceratozetes colchica, spec. nov.

Fig. 4

Diagnosis. Rostral incisure with median "wave" between two lateral teeth; lamellar cuspis tip long and very narrow, without lateral tooth; distance between the base of cuspides as long as cuspis length; sensillus flat fusiform and moderately widened, with two rows of small setulae at the borders; tutorium with moderately long, free cuspis, not reaching the rostral setae, on the upper border with 1–3 small teeth; genua I and II without teeth; legs with three claws.

Types. Holotype: ♀, Georgian subtropical region Adjara, v. Kokotauri, H: 380 m, 41°32'5" E, 41°42'60" N, 26.8.2001 (ZIGAST). – Paratypes: 4, same data (1 ZIGAST, 3 GW); 1, bank of the river Tschorokhi, H: 58 m, 41°35'39" E, 42°34'22" N, 30.8.2001 (ZIGAST); 1, Matschakhela Valley, H: 68 m, 41°30'45" E, 41°43'15" N, 30.8.2001 (ZIGAST).

Description

General characters. Body length 540–580 µm. Color reddish-brown, cuticle smooth.

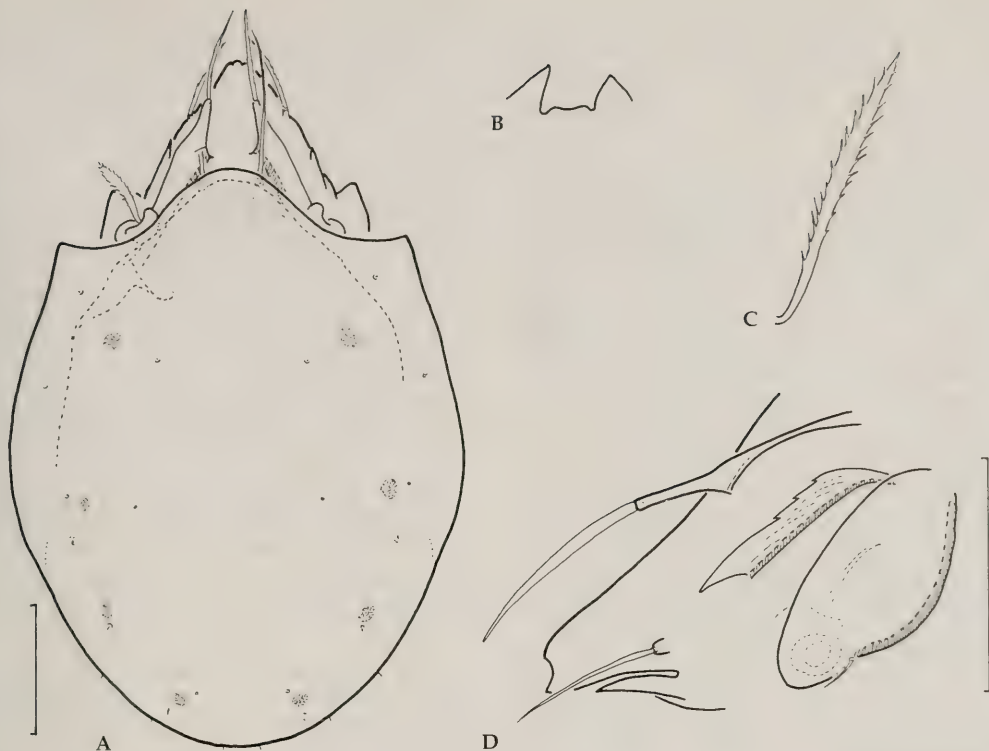


Fig. 4. *Ceratozetes colchica*, spec. nov. A. Dorsal aspect. B. Rostral incision. C. Sensillus. D. Lateral aspect of prodorsum.

Prodorsum. Rostral incisure with median "wave" between two lateral teeth (Fig. 4B). Rostral setae ciliate, on small apophyses. Outer side of lamellae concave to the slim cuspides. Cuspides unusually long (80 μm), without lateral teeth. Translamella absent. Relation of the length of cuspides to distance between the lamellae is about 1:1. At the tip of cuspides long, strong, erect lamellar setae present, about 85 μm . Interlamellar setae long, about 120 μm , reaching the tip of the rostrum (Fig. 3A). Sensillus slightly widened fusiform, flat, laterally ciliated, 150 μm long (Figs 4A,C). Tutorium short, with 1-3 teeth at the upper border. Cuspis of the tutorium \pm long and does not reach the basis of rostral seta (Fig. 4D).

Notogaster. 10 pairs of very short, smooth notogastral setae, in maximum 5-6 μm long (only one c-seta present). Areae porosae and lyrifissures are present as usual in *Ceratozetes*. Pteromorphs well developed, curved to the ventral side (Fig. 4A).

Ventral region. All setae minute, smooth and thin. Gnathosoma without peculiarities. Discidium with custodium. Coxisternal chaetotaxy: 3-1-3-3. 6 pairs of genital setae present, 5 pairs of setae are inserted as longitudinal row and one pair of setae present at the upper inner edge of the plate border.

Anogenital chaetotaxy: 6 g, 1 ag, 2 an and 3 ad.

Legs. Genua I and II without teeth. All tarsi with 3 claws.

Derivatio nominis. *Ceratozetes colchica*, spec. nov. refers to the ancient state of West Georgia "Kolkhety".

Localities. V. Kokotauri, deciduous forest with *Carpinus caucasica*, *Fagus orientalis*, *Castanea sativa*, *Picea orientalis*, *Rhododendron ungeri*, *Azalea pontica*, *Quercus* sp., *Alnus barbata*, underwood with *Ilex colchica*; bank of the river Tschorokhi, Chestnut forest with *Castanea sativa*, underwood with *Laurocerasus officinalis*; Matschakhela Valley, Mixed wood with *Castanea sativa*, *Quercus dschorochensis*, *Carpinus orientalis*, *Taxus bacata*, underwood with *Buxus colchicus*, *Corylus avellana*, *Smilax excelensa*.

Discussion. The new species belongs to the "mediocris-group", which is characterized by (1) flattened fusiform, moderately widened sensillus, at its borders with rows of small setulae; (2) very small lamellar cuspis tip, without exterior tooth; (3) long distance between the lamellar cuspides; (4) tutorium with moderately long free cuspides; (5) legs with three claws.

All European species of the group are smaller than *Ceratozetes colchica*, spec. nov. – less than 500 µm, and have teeth at the genua I and II. *C. mediocris* Berlese, 1908 differs by relatively broader cuspis tip, longer tutorial cuspis reaching the rostral setae and 11 longer notogastral setae (see Menke (1966), Behan-Pelletier (1984), Horak (2000) who compared many descriptions).

C. psammophilus Horak, 2000, differs by broader cuspis tip, rounded rostral incisure and 11 pairs of small notogastral setae.

C. minutissimus Willmann, 1951, is very small, 320–360 µm. It differs by a median tooth in the rostral incisure and 11 pairs of notogastral setae (see also Pavlitschenko 1994).

In the Caucasus area 13 species of *Ceratozetes* are registered (Karpainen et al 1987). Two of them, *C. bulanovae* Kuliev, 1962, and *C. cuspidodenticulatus* Kuliev, 1962, are similar to our species with very long lamellar cuspides, but do not belong to the “*mediocris*-group”. They are registered for Dagh-estan, Azerbajdzan and Crimea area. *C. bulanovae* differs from our species by small body size (400–420 µm), short and club-shaped sensillus and long tutorium. *C. cuspidodenticulatus* is also smaller – about 440 µm, with long tutorium and lateral tooth on the lamellar cuspis. Both of them differ evidently from *C. colchica*.

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